## Claims

- 1. A gateway for transporting stream traffic over an IP network, wherein the gateway comprising: a first communication unit for receiving stream data assigned to different stream data channels; an allocation unit for allocating two or more stream data channels to a stream service emulation tunnel provided by IP packets periodically transmitted over the IP network; and a packetization unit for packing the stream data of the allocated two or more stream data channels in IP packets assigned to the stream service emulation tunnel and for periodically sending these IP packets over the IP network, wherein such IP packets contain stream data of two or more different stream data channels.
- 2. The gateway according to claim 1, characterized in that the gateway further comprising: a second communication unit for receiving IP packets associated to at least one stream service emulation tunnel; and a unpacketization unit for allocating stream data transported by such IP packets to two or more stream data channels.
- 3. The gateway according to claim 1, characterized in that the packetization unit is arranged to change the transmission period of IP packets assigned to a stream service emulation tunnel dynamically.
- The gateway according to claim 1, characterized in that the gateway further comprising a tunnel control unit for dynamically establishing and releasing of stream service emulation tunnels.

- 5. The gateway according to claim 1, characterized in that the gateway further comprising a tunnel control unit for dynamically changing the stream channel allocation scheme used for the allocation of stream data channels to stream service emulation tunnels.
- 6. The gateway according to claim 1, characterized in that the first communication unit is adapted to receive stream data from a circuit switched network, in particular is adapted to receive E1 frames containing stream data.
- The gateway according to claim 6, characterized in that the gateway is a VOIP Gateway.
- 8. The gateway according to claim 6, characterized in that the gateway is an exchange of a circuit switched network.
- 9. The gateway according to claim 1, characterized in that the first communication unit is adapted to receive stream data over IP terminals.
- 10. A method for transporting stream traffic through a gateway over an IP network, characterized in that the method comprising the steps of: receiving stream data assigned to different stream data channels; allocating two or more stream data channels to a stream service emulation tunnel provided by IP packets periodically transmitted over the IP network; and packing the stream data of the allocated two or more stream data channels in IP packets assigned to said stream service emulation tunnel and for periodically sending these IP packets over the IP network, wherein such IP packets contain stream data of two or more different stream data channels.